TITLE OF INVENTION

Splash-prevention Paper.

CROSS-REFERENCE TO RELATED APPLICATIONS

This application is a continuation of application No. 10/298,203 filed on 11/18/2002 which is now abandoned.

FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT

Not applicable.

REFERENCE TO SEQUENCE LISTING, A TABLE, OR A COMPUTER PROGRAM LISTING COMPACT DISK APPENDIX

Not applicable.

BACKGROUND OF THE INVENTION

The present invention related to splash prevention device, designed for but not limited to be used in a toilet bowl to prevent the splash of soil water when the feces fall into the toilet bowl during the bowel movement.

The splash of the soil water by the falling feces into the toilet often causes the soil water in the toilet to contact with the person's body. It is not only very uncomfortable, but also has a risk of spreading diseases, especially when using a public bathroom. The risk is even higher for a female for the infection of the vagina.

The need to eliminate the splash in the toilet is obvious. But, we are still lack of such measure in practice. Though to achieve such goal is not a big technical challenge, the key point is that we need to have a highly effective means in technical, and meanwhile, have a very low cost to practice such measure.

Known prior art includes U.S. Pat. 6,374,428; 6,170,092. These two patents disclosed a sheet-like device to prevent the splash in a toilet. These two invention do not allow the feces to pass through the splash prevention sheet, therefore, these two invention may prevent the splash at the first piece of the feces, but soon lost the function as the sheet has been sunk by the load of the feces that have been dropped on it. Another known prior art is the U.S. Pat. 4,010,497. It has slits cut through the sheet to allow feces to pass. But, just as it describes: If the slit is too small, it may not be able to let the feces to pass, and the sheet may still be sunk by the feces. However, if the slit is too large, it may not be able to suppress the splash.

Another known prior art is the U.S. Pat. 4,774,730. This invention disclosed a device that is not disposable. It remains in the toilet, will trap dirties, and is difficulty to be cleaned.

BRIEF SUMMARY OF THE INVENTION

An object of the present invention is to provide a splash-prevention paper to suppress the splash of the soil water in a toilet, which results from the deposition of feces.

Another objection of the present invention is to provide a splash-prevention paper that has plurality of floating arms, which provide an effective coverage of the water surface while avoid the said paper from being sunk by the feces.

A further objective of the present invention is to provide a splash-prevention paper that has designed breaking points to promote mechanical breaking-down in the sewerage after the application.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG.1 shows the side view of a toilet with the splash-prevention paper of the present invention in place.

FIG.2 is the top view of an embodiment of the splash-prevention paper of the present invention, with sixteen floating arms of uniform width.

FIG.3 is the top view of another embodiment of the splash-prevention paper of the present invention, with eight floating arms of non-uniform width.

DETAILED DESCRIPTION OF THE PREFERRED EMBODYMENT OF THE PRESENT INVETION

For the purposes of promoting an understanding of the principles of the present invention, reference will now be made to the embodiment illustrated in the drawings. Specific language will be used to describe the same. It will, nevertheless, be understood that no limitation of the scope of the present invention is thereby intended, such alternations and further applications of the principle of the present invention as illustrated herein being contemplated as would normally occur to one skilled in the art to which the present invention relates.

With reference now to the FIG.1. As shown, the splash-prevention paper (3) floats on the surface of the water (2) in a toilet (1) so as to suppress the splash created by the deposition of material into the toilet. The particular size and/or shape of the said toilet is irrelevant to the utility of said invention as the said splash-prevention paper of the present invention may be sized to conform to the water surface created thereby.

In a preferred embodiment, the splash-prevention paper of the present invention is generally a flexible sheet that is made of fibrous material and/or plastics or other suitable natural or man-made materials that can float in the soil water and have certain mechanical strength such that the sheet will not disintegrate under the action of the falling feces during its application. The said splash-prevention paper is somewhat similar to the conventional paper towel. It can be in folded form, or be in rolls, for the easy storage and handling.

Now referencing to FIG.2 and FIG.3, The said splash-prevention paper contains a plurality of floating arms as shown in FIG.2 and FIG.3. The floating arms (4) occupy almost all the area of the said splash-prevention paper (3). There are sixteen floating arms (4) shown in

FIG.2, and eight floating arms (4) shown in FIG.3. The area covered by the floating arms is designed to face the falling feces in the application. The floating arms have only one end connected to the body of the said splash-prevention paper, each floating arm can move (e.g. bending and/or twisting) up-down or side-to-side independent of other floating arms. As the feces fall upon floating arms, the floating arms yield to the falling feces by bending down and/or to side, under the force acted upon by the falling feces. After the falling feces have passed through, the floating arms that yielded resume their positions on the surface of the water by their buoyancy. There are four designed breaking points (5) shown in FIG.2 and FIG.3.

In a preferred embodiment, the entire said splash-prevention paper is made with same type of material, and is made in single piece. The floating arms are then formed by cutting into the said paper. In this case, the (6) in FIG.2 and FIG.3 is the cutting. But, in general, the (6) is just the periphery of the floating arms. The cutting here is to create a discontinuity within the said paper, and it does not has to remove any material though removing small amount of material (is this case, a small gap will be created between the floating arms) does not affect the function of the paper.

According to the principle disclosed here, there are many other ways to construct the said paper and floating arms. Furthermore, the floating arms do not have to be flexible. For example, a rigid floating arm that can flip up-down and/or side-to-side will also serve the purpose. Even furthermore, the floating arms do not have to rely on their own buoyancy to stay on the surface of water. For example, the floating arm may rely on elasticity to resume its position on water surface after having yielded to the falling feces. There are countless variations that should be obvious to a one skilled in the art.

In a preferred embodiment, the dimension of the said splash-prevention paper is around 8 inches by 8 inches, with a thickness around one-sixteenth of an inch. The dimension may vary in according to the size of the toilet bowl or commode, and the thickness may vary too in according to different material used. Though, a square shape is illustrated in FIG.2 and FIG.3, it may assume other shapes, such as rectangle, circle, triangle etc. In FIG.2, sixteen floating arms are illustrated; and in FIG.3, eight floating arms are illustrated. But, this is only for the sake of the description of the present invention, and it is not intended to limit the embodiment to only those two forms. Variations in the number, size and shape of the floating arms are obvious for a one skilled in the art.

In a preferred embodiment, the said paper is made of porous material, just like the paper towel, containing wax or other agents to maintain its strength and buoyancy as being placed into a toilet. In application, a piece of the said paper is placed into a toilet. The said paper floats substantially flat on the surface of the water in the toilet, and maintains its floating during the entire period of application.

The sheet is only required to maintain its own floating. It does not have to have the extra buoyancy to carry other loads, though more buoyancy is generally welcome. The splash is eliminated by at least two mechanisms: the damper of the impact of the falling feces by the floating arms, and the coverage of the water surface by the said paper (including the floating arms).

Wax or other types of hydrophobic materials can be coated on the sheet to maintain its buoyancy, or the sheet can be made with the materials that have the inherent ability to maintain floating in the soil water. A porous structure is desirable for the sheet for the advantages in both mechanical strength and buoyancy.

The buoyancy of the sheet can also be provided with other means. For example, plastic foam, which is not dissolved in soil water, such as polystyrene foam, can be bonded to the paper to provide the buoyancy. Plastic form segments are preferred for easy disintegration of the said paper after its application. The said pager may be made totally with plastic foam, as long as the plastic can be easily disintegrated in the sewage after the application.

In a preferred embodiment, the said paper of the present invention also has designed breaking points (5), as shown in FIG.2 and FIG.3, to promote the mechanical breakdown of the paper in the sewerage by the flow of sewerage water after the application. The sheet may also be made with biodegradable material, or it can carry agents for biodegradation of the sheet, to further enhance the breakdown of the sheet after its application.

The designed breaking point can be a very narrow width of the remaining paper after the cut, as shown in FIG.2 and FIG.3, or it can be a perforation, or combine of these two means. The designed breaking points are the designed weak points in the sheet for mechanical breakdown after the application.

The material of the sheet has a certain mechanical strength to withstand the impact of the feces during its application. Since it is designed for the paper (floating arms) to yield to the falling feces, instead of stop the falling feces, strength required is minimum, which is also favorable to the breaking-down of the paper after its application.

The paper can also carry various agents, including, but not limited to, germicide, disinfectants, detergents, perfumes, odor suppression agents, coloring agents, biodegradation agents etc.

With respect to the above description, then, it is to be realized that the variations in size, materials, shape, form, function and manner of operation assembly and use, are deemed readily

apparent and obvious to one skilled in the art, and all equivalent relationships to those illustrated in the drawings and described in the specification are intended to be encompassed by the present invention.

Therefore, the foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly, all suitable modifications and equivalents may be resorted to, falling with the scope of the invention.